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DESCRIPTION EP0443152A1

[0001]

¹³ The innovation relates to a longitudinally divided, tubular covering made of polymeric material with a longitudinal snap-in closure which has an integrally formed latching groove along one longitudinal edge and an integrally formed latching spring along the other longitudinal edge.

[0002]

¹⁹ Such a tubular cover is known from DE-OS 29 00 796, which has a longitudinal zipper made of two profile parts arranged along a film jacket, which can be hooked together.

²¹ On one of the profile parts a longitudinal tab is integrally formed, which covers the closed zipper from the inside. For this purpose, the tab carries an adhesive on its free outer side and can be glued to the inner wall of the film jacket with this side.

[0003]

²⁷ From the European patent application 0 199 349 a longitudinally divided sleeve made of shrinkable material is known, which has a snap fastener along its longitudinal edges.

²⁹ In this case, a longitudinal groove of two longitudinally extending legs is arranged on one longitudinal edge, while a hook part with a resilient attachment is formed on the other longitudinal edge. The legs delimiting the longitudinal groove, on the one hand, and the hook part, on the other hand, are integrally formed longitudinally on the free edges of the film body. The legs delimiting the longitudinal groove and the hook part are crosslinked to a greater extent than the sleeve area provided for shrinkage.

[0004]

38 The closable cuffs belonging to the prior art have the disadvantage that the closure areas are arranged on the outside and consequently protrude outwards when the cuffs are closed.
40 This creates an uneven outside in the closed state of such cuffs, which increases the risk of damage z. B. when used as wire harness covers in engine compartments, cable rooms and the like. Increased.

[0005]

46 A further disadvantage of such known sleeve-shaped hose covers is that they cannot be closed in a splash-proof manner without additional manufacturing and assembly costs.
48 Here, DE-OS 29 00 796 shows a possibility, which, however, results in an enveloping sleeve in a splash-proof design only through subsequent assembly work.

[0006]

53 This is where the innovation comes in, which has set itself the task of specifying a longitudinally divided, tubular covering that results in a splash-proof covering of the covered substrates with the lowest possible manufacturing and assembly costs.
56 According to the innovation, it is proposed that the flexible hose cover runs in the extension of the outer side leg of the U-shaped receptacle forming the locking groove, that the locking spring has a T-shaped base area, whose outwardly directed leg widens and is in one piece with the flexible hose cover in the area of the widening is connected, and that a retaining web carrying the mushroom-head-like catch protrudes from the center of the base area.

[0007]

64 It has turned out to be advantageous that the legs of the locking groove and the locking spring are made of hard polymer material.

[0008]

69 Furthermore, it is expedient for the legs of the locking groove to have locking lugs directed towards the interior at their free ends.

[0009]

74 A permanently elastic adhesive can advantageously already be introduced into the U-shaped receiving space of the locking groove during the production of the collar.
76 In the latched state, the free ends of the side legs of the latching groove are also supported on the inner surfaces of the T-shaped base area of the latching spring.
78 If necessary, the mushroom-head-like latch dips into the permanently elastic adhesive of the receiving groove of the U-shaped receiving space of the latching groove and in this way forms a

splash-proof casing of the substrate to be protected with the closing of the longitudinal latching closure in one operation.

[0010]

⁸⁵ The tubular covering according to the invention has the advantage over the known prior art that a splash-proof covering of a substrate to be protected can be produced in a single assembly operation.

[0011]

⁹¹ A further advantage can be seen in the fact that the hard material setting of the closure elements means that the closure can be produced without additional work equipment.

⁹³ The assembly personnel simply squeeze the closure elements together by hand, creating the secure enclosure around the substrate.

⁹⁵ In this way, the secure cover produced in this way can be opened again by hand if necessary.

⁹⁶ This requires tensile forces that exceed the holding forces of the mushroom-head-like latch in the latching groove and, if necessary, the adhesive force of the adhesive used. Structural measures can be used to set the pull-out forces in such a way that the closure can be opened by hand.

[0012]

¹⁰³ In this way, for example, when additional substrates to be protected are subsequently introduced into the tubular casing, it does not have to be cut open;

¹⁰⁵ B. an electrical cable - inserted and then closed again. The same process can be carried out when removing, for example, cables that are damaged or no longer required from the secure enclosure that has been produced.

[0013]

¹¹¹ In the manufacture of cable branches, too, the sheath no longer has to be cut off or cut open, as is the case in the prior art.

¹¹³ Rather, the secure enclosure is only opened in the area of the branch and the required cable is led out through this opening. The opening is then closed from the outside, thus restoring the splash-proof covering of the substrate.

[0014]

¹¹⁹ The tubular covering according to the invention can be produced from different materials, whereby the soft cuff part can be produced in one piece with the harder closing elements, for example by way of coextrusion.

[0015]

- 125 For example, materials such as soft polyvinyl chloride, santoprene, polyurethane and similar materials can be used for the soft cuff part.
- 127 The closure elements that are set to be harder can consist, for example, of hard polyvinyl chloride, polyamide, polyethylene, polycarbonate and similar materials.
- 129 The adhesive or Sealing compound can consist of butyl, for example. However, all other adhesive materials can also be used which have the adhesive strength and elasticity required for permanent production of the adhesive connection.

[0016]

- 135 In the drawing, an embodiment of the inventive tubular casing is shown schematically; show it:
- 136 figure 1
- 137 the hose cover in the open state
- 138 figure 2
- 139 the hose casing in the closed state

[0017]

- 143 The tubular covering in FIG. 1 consists of the flexible tubular covering 1, which runs as an extension of the outer side leg 21 in the U-shaped receptacle forming the locking groove 3.
- 145 At the other free end of the flexible tubular casing 1, the detent spring 4 is formed.

[0018]

- 149 In the delimited by the legs 21, 22, 23 latching groove 3 of permanently elastic adhesive 5 is introduced.
- 151 The legs 21, 23 of the locking groove 3 have locking lugs 211, 231 directed toward the interior at their free ends.
- 153 Between the free ends of the locking lugs 211, 231 there is a through-opening 31 to the locking groove 3, through which the catch 42 is pressed into the locking groove 3 when the locking connection is established.
- 156 The flexibility of the material used to produce the latching elements allows the legs 21, 23 of the latching groove 3 to be pressed apart until the latch 42 has been pressed into the latching groove 3 over its full length.
- 159 The legs 21, 23 then spring back behind the catch 42, with the catch lugs 211, 221 directed towards the interior engaging behind the catch 42.

[0019]

¹⁶⁴ When the latching connection is established, the latch 42, which is connected in one piece to the hose casing 1 via the base region 41 and the holding web 43, enters the latching groove 3 via the opening 31 while spreading the legs 21, 23 and penetrates to the bottom of the receiving groove 3 .

[0020]

¹⁷¹ Here, the permanently elastic adhesive 6 arranged at the bottom of the locking groove 3 is displaced within the locking groove 3 and engages behind the catch 42.

¹⁷³ These connections result in a permanently splash-proof snap closure.

[0021]

¹⁷⁷ The connection process between latch 42 on the one hand and latching groove 3 on the other is complete when the free ends of legs 21, 23 are supported on surfaces 4111, 4121 of legs 411, 412 of T-shaped base area 41.

¹⁸⁰ The tubular casing 1 can be used with or without adhesive 5 in the locking groove 3.

[0022]

¹⁸⁴ Fig. 2 shows the tubular casing in the closed state with the latching connection made.

¹⁸⁵ This representation shows that the connecting elements, namely the legs 21, 22, 23 required to produce the locking groove 3 on the one hand and the catch 42 with the base 41 and the retaining web 43 on the other hand, protrude into the interior 12 of the tubular covering 1.

¹⁸⁸ This results in a smooth finish with no overhang, even in the connection area of the free ends of the tubular casing 1 .